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REPORT ON 2001 GEOLOGICAL EVALUATION AND CORE DRILLING BONANZA CLAIMS GROUP, WHITE CRYSTALLINE LIMESTONE DEPOSIT VANCOUVER ISLAND, BRITISH COLUMBIA

NTS 92L/7W
NANAIMO MINING DIVISION
BRITISH COLUMBIA

LATITUDE 50 DEGREES 21 MINUTES NORTH
LONGITUDE 126 DEGREES 43 MINUTES

FOR OMYA ST. ARMAND, MONTREAL QUEBEC

ACTIVITY	DATE	PERFORMED BY:
Core Drilling	June 2001	Neills Mining Company (Victoria BC)
Core Logging	June 2001	Howard Brown (Geologist)
Core ship to CA	July 2001	Overland Freight Lines Port McNeill BC
Report Preparation	July 2001	Howard Brown (Geologist)

DATE SUBMITTED: JULY 23, 2001

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

26,596

REPORT ON 2001 GEOLOGICAL EVALUATION AND CORE DRILLING WHITE CALCITE MARBLE DEPOSIT BONANZA CLAIMS GROUP, VANCOUVER ISLAND, BRITISH COLUMBIA

NTS 92L/7W
NANAIMO MINING DIVISION
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INTRODUCTION

Continued core drilling was undertaken at the Bonanza Group of mineral claims during June 2001, for Industrial Fillers of Montreal Quebec (Fig. 1).

The claims which are located in the Bonanza Lake area of northern Vancouver Island British Columbia, contain a very large and potentially very significant deposit of white, high purity, crystalline limestone.

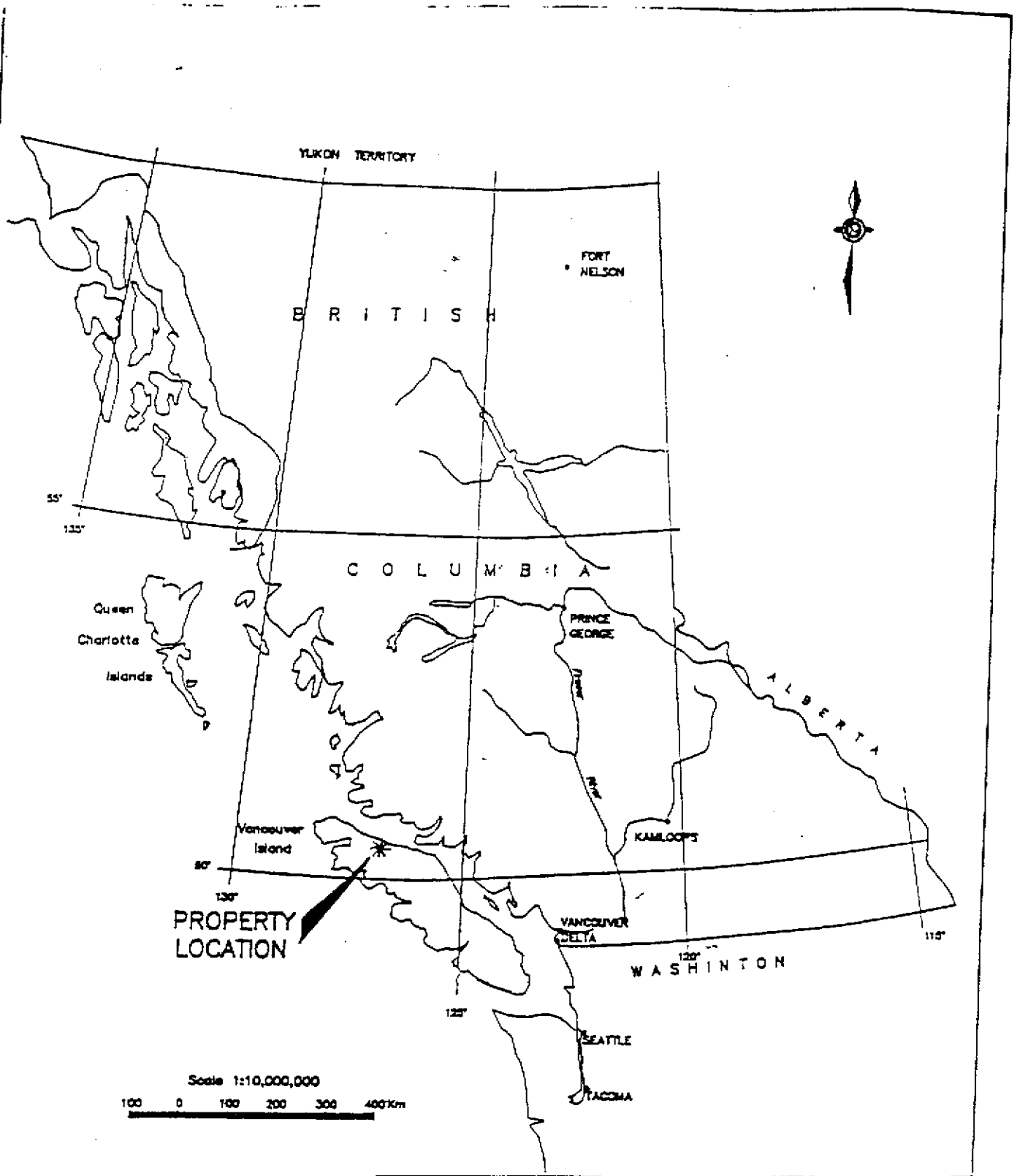
The purpose of the core drilling was to obtain additional details of the subsurface geology, deposit limits, continuity at depth, and quality of the limestone for continuing evaluation of potential reserves, rock quality, and future mining of the deposit.

PROPERTY STATUS

The Bonanza property currently consists of two modified grid system mineral claims and four two post mineral claims. The claims are located in the Nanaimo Mining Division on mineral title map 92L/7W. Figure 2 is a claim map.

TABLE 1. BONANZA GROUP CLAIMS

CLAIM NAME	RECORD NO.	UNITS	NEW EXPIRATION DATE
Bonanza 1	**2773(8)**	**20**	**25 Aug 2006**
Bonanza 2	**2774(8)**	**12**	**25 Aug 2005**
J16-1	**329082**	**1**	**26 July 2006**
J16-2	**329083**	**1**	**26 July 2006**
J16-3	**329084**	**1**	**26 July 2006**
J16-4	**329085**	**1**	**26 July 2006**
KC-4	**367208**	**2**	**26 Nov 2005**
TOTAL UNITS		38	



BONANZA GROUP CLAIMS

LIMESTONE DEPOSIT

LOCATION MAP

SCALE	DATE			
as shown		N.T.S.		Figure:

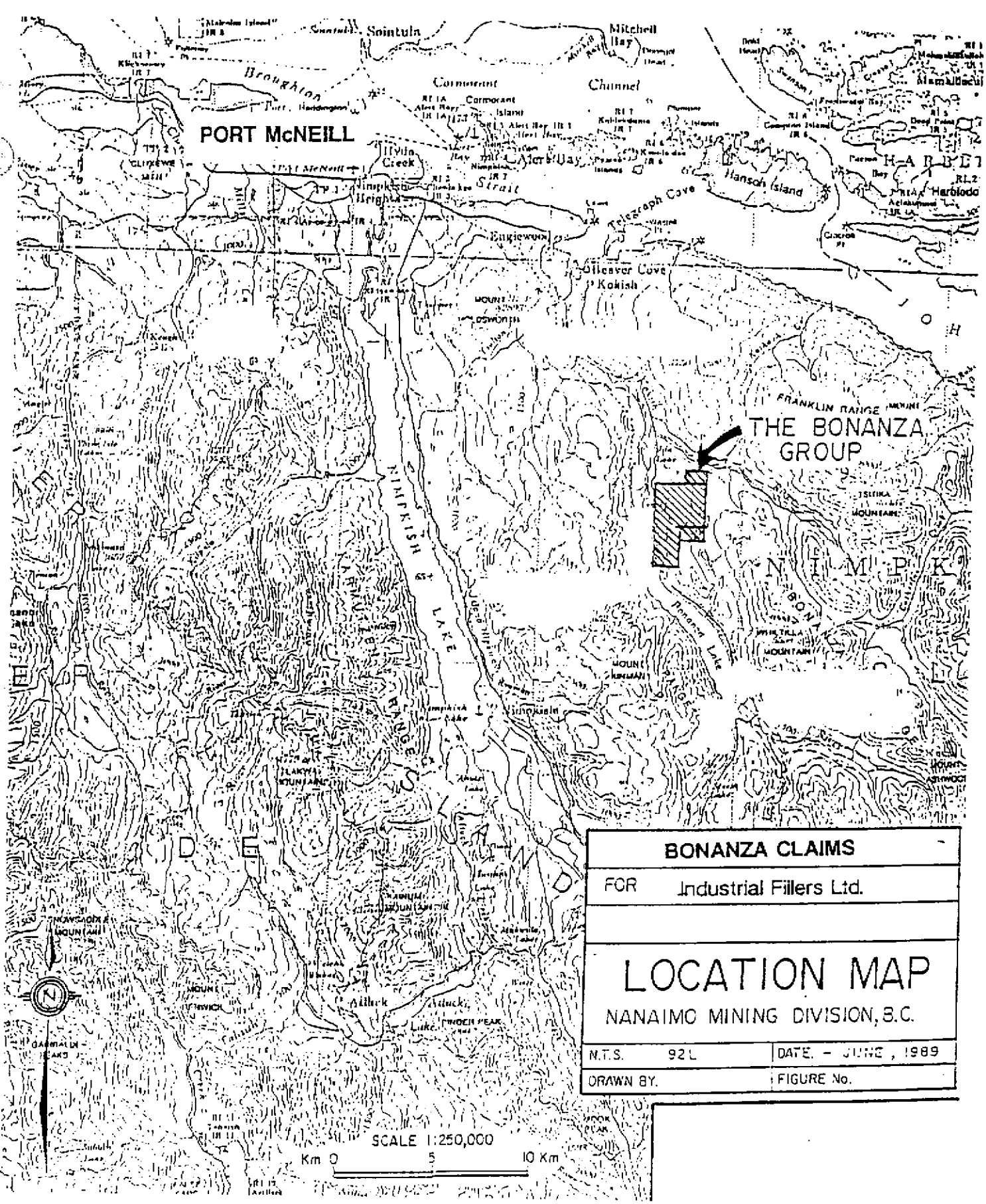


Figure 2. Index map showing location of Bonanza Claims area.

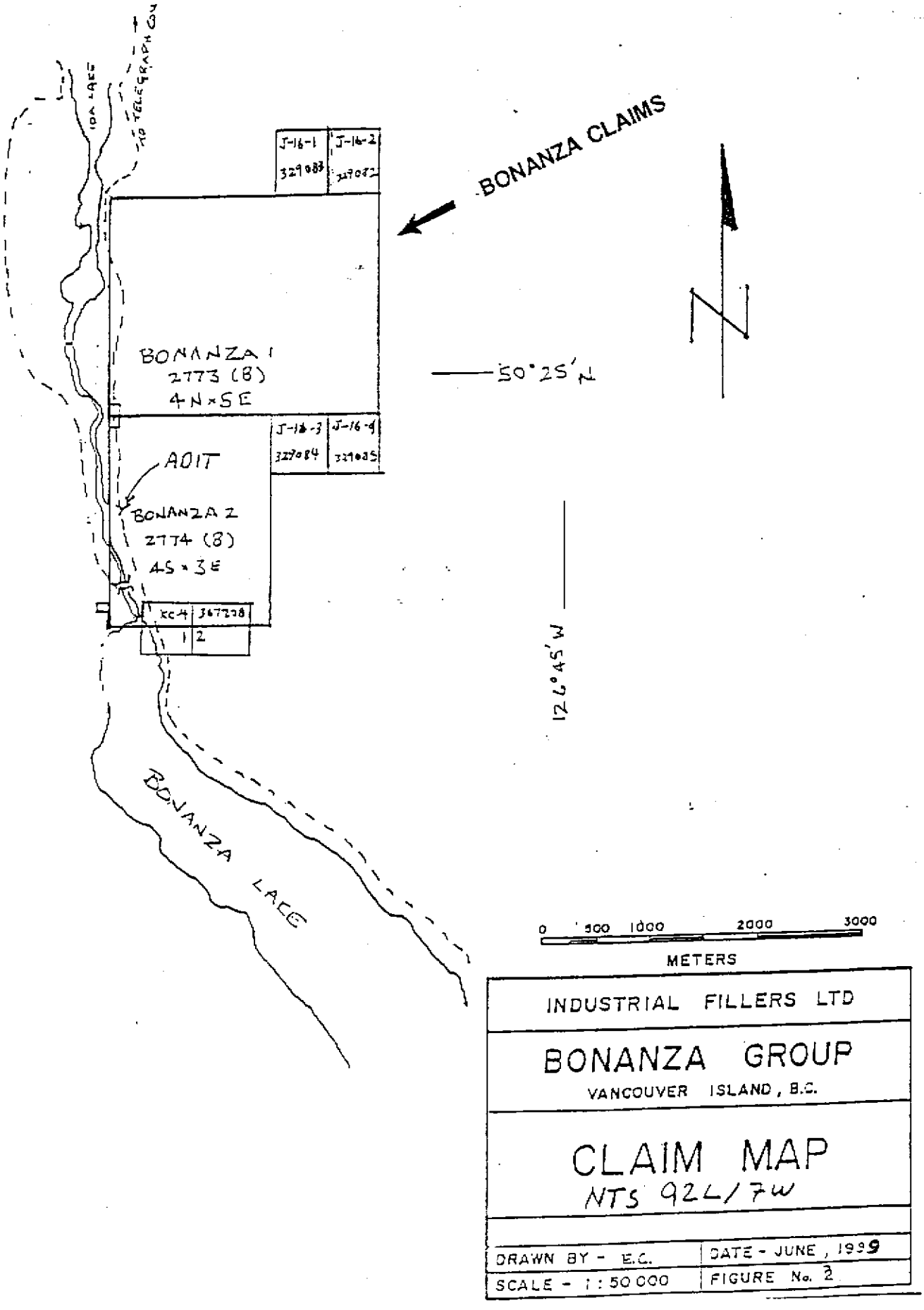


Figure 3. Claim map, Bonanza Calims.

All the claims are registered in the name of Industrial Fillers Ltd. of Montreal Quebec.

LOCATION AND ACCESS

The Bonanza claims property covers the mountain which is located immediately east of the north end of Bonanza Lake. Port McNeill, the closest town is about 40 Km (by road) to the northwest. Accommodations and supplies are available at Port McNeill.

The property is accessed from Port McNeill by following B.C. Highway 19 south for 10 Km., and Telegraph Cove Road east for 14 Km. Bonanza Lake and the Bonanza claims are then reached by following the major South Main logging road (Timber West) for 15 Km. The South Main runs along the Kokish River and the east side of Bonanza Lake. The claims are accessed from the south main and several branch logging roads which have been constructed during the last 15 years.

A deep water harbor is located at Beaver Cove, approximately 20 Km north of the Claim area.

PHYSIOGRAPHY AND CLIMATE

The Bonanza mineral property covers part of a rugged north south trending mountain which is immediately east of Bonanza Lake. Drainages on the west side of the mountain is into Bonanza Lake, and the Bonanza River while drainages on the east side of the mountain drain into the Kokish River.

Elevations on the claims range from about 270 meters at Bonanza Lake to 970 meters at the top of the mountain. Slopes range from very steep and rugged to inaccessible vertical cliffs over 100 meters high.

Portions of the claims have been heavily logged during the past 15 years, and logging continues into the present time. Recently clear cut areas are covered by thick slash. Areas logged within the past 15 years are covered by immature second growth fir. Areas which have not yet been logged are covered by thick first growth fir and cedar. Large scale intensive clear cut logging continues to the present day.

Bonanza River, and several unnamed creeks which drain the mountain and Bonanza Lake are the major sources of water on the property.

The claims are within the coastal rainforest climatic zone. Precipitation is heavy, occurring as rain during winter, spring, and summer months. Winter snow accumulates at higher elevations.

USES AND SPECIFICATIONS OF HIGH BRIGHTNESS, HIGH PURITY LIMESTONE

High purity white crystalline limestones have a large number of uses and are classified as white fillers and extenders with value added characteristics. The products are finely ground, high brightness, high purity limestone, and are the whitest, purest, and most valuable per ton of all limestone products.

Desirable characteristics are high brightness (white color), low tint, uniform fine particle size, freedom from grit, and chemical purity. Color and purity are of utmost importance in virtually all applications. Limestone suitable for white fillers and extenders is limited to a minimum of 98% $CaCO_3$, and a maximum of 2% combined $MgCO_3$, SiO_2, and all other impurities combined. Brightness requirements range from low 90's to greater than 95. Tint values are generally below 2.0.

The greatest uses of fillers and extenders are paint, rubber products, putty, pottery, paper, a variety of plastics, food, flooring, PVC pipe, white ink, tooth paste, wire coating, glue, caulking compounds, resins, and polyesters. Uses in the housing industry include ceiling and wall textures, dry wall mud, joint compounds, stucco, and fiberglass roofing shingles.

As can be seen, for most uses, white fillers and extenders requires not only the most pure limestone, but also the whitest color of all limestones. The restricted nature of the deposits and the fact that products are shipped as far as 2000 miles from currently mined sources, indicates a large demand by our society for these valuable products.

REGIONAL GEOLOGY

The northern Vancouver Island region is primarily composed of thick island arc type intermediate volcanic rock sequences, and limestone and clastic rocks of Triassic and Jurassic age, which have been intruded by Mesozoic age batholithic rocks. Figure 3 is a generalized regional geologic map.

A thick sequence of andesite and basalt of the Triassic Karmutsen Formation is overlain by limestone of the Quatsino Formation, also of Triassic age. The Quatsino is overlain by the Parsons Bay Formation, a mixed but largely fine grained clastic sedimentary sequence of latest Triassic age, which is in turn overlain by the Bonanza Group, composed of intermediate to felsic volcanic rocks of Lower Jurassic age.

All of the previous (older) rocks have been intruded by Upper Jurassic batholithic intrusive rocks of the Island intrusive series, and which range from diorite to quartz monzonite in composition. The intrusive rocks are thought to be responsible for the formation of skarns, some metalliferous deposits, and bleaching and recrystallization of susceptible limestones of the Quatsino Limestone to form white, high calcium, crystalline limestone deposits in the Bonanza Lake area.

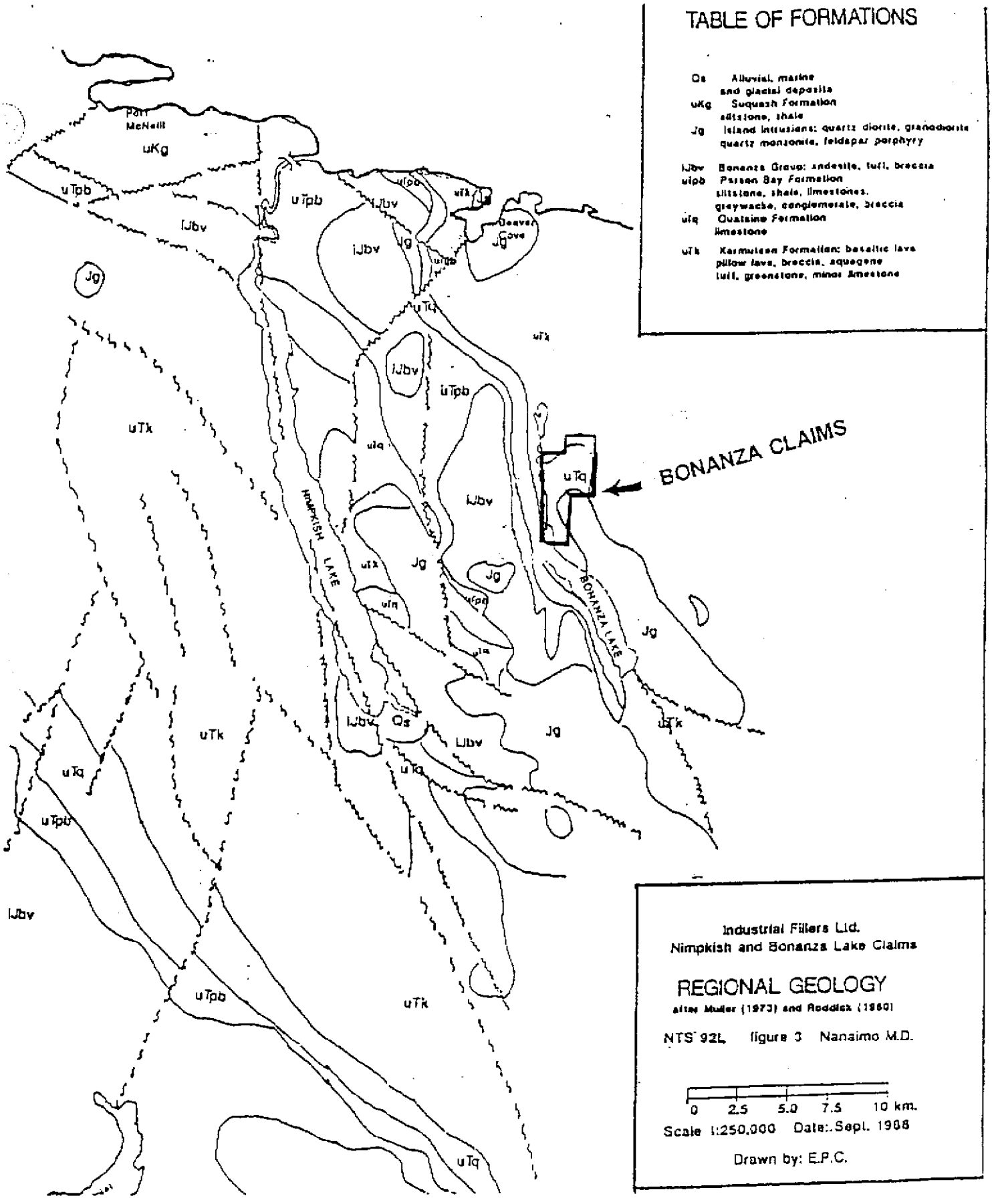


Figure 4. Regional geologic map.

LOCAL (PROPERTY) GEOLOGY

Accessible portions of the Bonanza Claims property have been mapped in the past at a scale of 1:5000 on an orthophoto topographic base map, in order to accurately define the large white, high purity crystalline limestone deposit on the property.

The property contains Triassic Karmutsen volcanic rocks, which are overlain by white and grey Quatsino Limestone of Triassic age, which in turn is overlain by Parsons Bay Formation. These rocks have been intruded by hornblende, biotite granodiorite of the island intrusive series. Thin intermediate dikes and felsic sills have also intruded the limestone. Sparsely mineralized skarn has formed along the contact between granitic intrusives and the Quatsino Limestone.

Several rock units were defined during the mapping, and a brief description is included in Table 2, from oldest to youngest.

TABLE 2. DESCRIPTION OF ROCK UNITS BONANZA CLAIMS PROPERTY

UNIT NUMBER	AGE	DESCRIPTION
UNIT 1	Triassic	**KARMUTSEN FORMATION** Buff to Greenish-grey weathering, dark green to dark grey and black, fine grained to porphyritic, massive andesite and basalt flows, sills, and dikes. Occasional pyrite present near upper contact. Upper contact ranges from conformable to unconformable and in some places is a fault, and or has been intruded.
UNIT 1A	Triassic	Light grey limestone lenses up to 10 feet thick near upper contact.
UNIT 2A	Triassic	**QUATSINO LIMESTONE LOWER MEMBER** Thick bedded to massive, white, light grey to black weathering, light grey, off white, and white crystalline limestone, sometimes sucrossic, and medium grained calcite marble. Limestone often contains stylolites which contain pyrite. When oxidized contains occasional iron oxide stain. Unit contains occasional grey silica blebs, which may be silicified fossils. The white limestone occurs in layers 20 to 150 feet thick and is interbedded with units 2B, 2C. Degree of metamorphism (recrystallization) increases toward the south, and in proximity to granitic intrusives.

UNIT 2B	Triassic	Thin to thick bedded, medium to dark grey limestone and marble, in layers 10 to 15 feet thick. Occurs interbedded with Units 2A and 2C.
UNIT 2C	Triassic	Off white to white marble with irregular chert and silica nodules, which weather in relief to irregular shaped small knobs. Occurs in southern 1/2 of area.
UNIT 2D	Triassic	Interbedded white and grey limestone (UNITS 2A and 2B) undivided.
UNIT 3	Triassic	**QUATSINO LIMESTONE UPPER MEMBER** Thick bedded to massive medium to very dark grey limestone and marble occasionally cherty and or silty and muddy. Occasional silica blebs (fossils), and occasional tremolite when metamorphosed to marble.
UNIT 3A	Triassic	UPPER WHITE MARBLE Coarse grained off white to white calcite marble. Occurs in southern portion of map area.
UNIT 4	Triassic	**PARSONS BAY FORMATION** Brown, black, rusty brown and grey weathering thinly interbedded clastic sediments, including argillite, mudstone, siltstone, shale, chert and muddy limestone. Bedding planes often contain pyrite, which colors the rocks rusty brown when oxidized.
UNIT 5	Jurassic (?)	**INTRUSIVE** Dark green to black diabase sills, dikes and intrusives.
UNIT 6	Jurassic (?)	**INTRUSIVE** Brown to red brown weathering, fine grained siliceous, pyrite bearing felsite sills.
UNIT 7	Jurassic	**INTRUSIVE** Coarse grained biotite quartz monzonite, and quartz diorite granitic batholithic rocks of the Island Intrusive Series.
UNIT 8	Jurassic (?)	**SKARN** Brown weathering, vuggy, garnet, epidote, chlorite, quartz, calcite skarn. Occurs along contact with granite and or felsite with Quatsino Limestone.
UNIT 9	Pleistocene - Quaternary-Recent	**UNCONSOLIDATED SEDIMENTS** Alluvium, glacial deposits, talus, soil, fill, stream bed deposits, mud flows, and or other recent unconsolidated sediments.

SEDIMENTARY AND VOLCANIC ROCKS

Karmutsen Formation volcanic rocks of Triassic age form the basement and generally dip gently (0-15 degrees) to the southwest. The Karmutsen is generally composed of dark colored , fine grained to porphyritic andesite volcanic rocks. Thin (3 meters) limestone layers or lenses were noted near the top of the formation in several areas. The top of the Formation ranges from conformable to unconformable or possibly a low angle fault. In some outcrops near the base of the Quatsino, the limestone contains clasts of the Karmutsen, suggesting an unconformity. In other places in the general area off the Bonanza Claims, the Karmutsen underlies the middle portion of the Quatsino Limestone and the lower part is missing suggesting the contact is a fault.

Quatsino Limestone of Triassic age, can be divided into two members, a Lower Member composed dominantly of white limestone and calcite marble, with interbeds of grey limestone, and an Upper Member composed almost entirely of dark grey limestone. The lower Member may be up to 300 meters thick. The Upper Member may be up to 300 meters thick on the west side of Bonanza River. Dips of the limestone are generally shallow, ranging from 0 to 18 degrees to the south west. Steep dips (near vertical) were noted adjacent to some high angle faults.

Both the Lower and Upper Members of the Quatsino Limestone are prominently exposed on the Mountain east of the Bonanza River and Bonanza Lake.

Parsons Bay Formation of Triassic age overlies the Quatsino Limestone, and outcrops on the west side of the Bonanza River. The rocks dip shallow to the west, and are composed of dark grey to black and rusty brown fine grained clastic rocks, including argillite, shale, siltstone, chert, and minor impure muddy limestone.

Glacial drift, soil, and unconsolidated sediments cover large portions of the gentle slopes to the west of the Bonanza River. Bedrock outcrops are rare in the gentle terrane, only being present in some of the creek beds. Steep slopes are often covered by a mantle of soil and decomposing organic material, which in some cases may mask the underlying bedrock geology.

INTRUSIVE ROCKS

Several varieties of intrusive rocks are present on the claims, or in the area of the claims. Intrusive rocks on the claims include diabase, felsite and batholithic rocks.

Thin (less than 2 meters thick) dark greenish grey diabase dikes and sills, were noted to have intruded the limestone. Dikes are generally steeply dipping (near vertical), while the sills are gently dipping. Dikes were encountered in drill holes 01-3, and 01-4. Skarn zones occur adjacent to some of the dikes and sills.

Brownish colored fine grained pyrite bearing felsite sills were noted in several locations. At the

south east limit of the claims, a pyrite bearing felsite sill is exposed along a logging road. The sill has intruded along the contact between the top of the Karmutsen and the base of the Quatsino Limestone. The sill was followed to the contact with batholithic rocks. Core drilling encountered this rock in drill hole 95-1.

On the west side of the mountain, several rusty brown sills were noted in the limestone, and off the claims to the south, at the contact with the batholithic rocks a large rusty brown mass appears to have sills of felsite "shooting off" into the limestone. The felsite sills are interpreted to be a fine grained contact intrusive which are off shoots from the main batholithic mass which forms the core of the mountain to the south.

Near the base of the quatsino are at least two very thin mafic sills up to 3 feet thick. Drill holes 01-1 and 01-5 encountered the sills.

The core of the mountain (south of the claim boundary) is composed of the northern end of a much larger pluton which is widely exposed to the south of the claims. The batholithic rocks are thought to be Jurassic age (and the felsite and diabase sills are also inferred to be of Jurassic age), and are composed of medium grained biotite quartz diorite, and granodiorite. The intrusive rocks are correlated with the Island Intrusive Series, which is widely exposed on northern Vancouver Island.

METAMORPHIC ROCKS

Garnet - epidote skarn is present along the contact with the Quatsino Limestone at the north end of the intrusive plutonic mass. The rock is medium brown in color, and weathers readily in the wet climate, but is exposed along a logging road near the southeastern claim boundary.

Previous drilling has encountered several skarn zones adjacent to the thin diabase dikes. The skarn zones often contain up to 10 % pyrite and other sulfide mineralization.

As noted previously, Mesozoic granitic rocks have intruded the Quatsino Limestone. The Quatsino Limestone in the southern part of the claims area is close to the granitic contact and has been recrystallized to medium grained calcite marble. Quatsino in the northern and western part of the claims is greater distance from the intrusive mass, and is not recrystallized, or is recrystallized to a lesser degree. Clearly, close proximity to the granitic intrusive contact has resulted in a greater degree of recrystallization and metamorphism of the limestone to marble.

STRUCTURAL GEOLOGY

Structure in the vicinity of the claims is dominated by the gently west dipping upright homoclinal volcanic-limestone sequence, (which apparently forms the limb of a large synform), which has been cut by several high angle faults. The lower contact of the Quatsino against the Karmutsen may in some places be unconformable or a low angle fault.

FOLDS

Mapping shows that the volcanic and sedimentary rocks form an upright homoclinal sequence which dips gently to the southwest. Regional mapping by this author and several other workers has defined a series of large regional map scale northwest trending open folds. The sedimentary and volcanic rocks in the Bonanza lake area dip west and form the east limb of a large syncline.

HIGH ANGLE FAULTS

Several mapped and suspected high angle faults are present in the claims area. Fault trends can be grouped into two dominant trends; generally north-south trending high angle faults, and generally east-west trending high angle faults.

North-south trending high angle faults and suspected faults, are defined by abrupt linear topographic ridges and or breaks in topography. The faults appear to be high angle features, and the down dropped block is toward the Bonanza River , and Bonanza River and Bonanza lake may themselves occupy a fault controlled valley.

Several suspected east-west trending possibly south dipping high angle faults are also present in the claims area. The suspected faults are defined by apparently offset contacts and abrupt linear topographic "walls". In the vicinity of one of the faults, rocks adjacent are dipping nearly vertical. It is inferred that these faults are related to intrusion of the granitic batholithic rocks.

OTHER STRUCTURES

As previously noted the contact between underlying Karmutsen Formation and the overlying Quatsino Limestone is in general conformable, however the presence of Karmutsen clasts in basal units of the Quatsino suggests an unconformity is present at least locally. In addition, mapping outside the Bonanza claims suggests that the contact between the formations is a low angle fault, as significant portions of the Lower Member of the Quatsino are often missing, having been faulted out along the low angle contact. Where this has occurred, a low angle thrust fault is inferred.

FORMATION OF THE LIMESTONE DEPOSIT

Several processes contributed to the formation of the white, high purity limestone deposit. Limestone is a common rock type, found all over the earth, but white, high purity crystalline limestone deposits are uncommon in nature. are found only in restricted areas, and require several geologic processes over a long period of geologic time to form.

Among the processes are:

1) Deposition of originally pure limestone in high energy agitated, shallow marine environment.
2) Post depositional changes including metamorphism and/or magmatic processes to bleach and recrystallize the rock, and disperse any impurities which may have been present.

3) Structural controls including folding, faulting and orogenic processes to place the rocks in desirable structural settings.
4) Uplift and erosion.
5) Preservation thru geologic time.

Because all the geologic processes are required, deposits of high calcium white crystalline limestone are relatively uncommon in nature, and are vastly different from common limestone. Deposits of high purity, high brightness crystalline limestone suitable for high quality filler and extender applications are limited and only occur in restricted areas.

In this section the various processes influencing the genesis of the Bonanza Lake deposit will be summarized.

ENVIRONMENT OF DEPOSITION

Environment of deposition is important because it determines the size, shape, purity, and other economically significant characteristics of the carbonate rock deposit.

Limestones that form in high energy environments generally contain only minor non-carbonate impurities, and are the source of high purity limestone. Limestones which form in low energy environments contain mud, clay, silica, and other impurities. Turbulent or agitated water will winnow mud from the sediments. Calm water allows mud to settle to the bottom and remain there.

The Lower Member of the Quatsino formed in part in a high energy environment similar to the type of environment just described, resulting in deposition of pure limestone. A direct relationship exists between depositional environment and carbonate chemistry. Limestones which form in high energy environments contain more $CaCO_3$, and less MgO, Fe_2O_3, SiO_2, and Al_2O_3 impurities than muddy low energy limestones.

Within the Quatsino Limestone Lower Member are abundant limestones which formed in a high energy shallow marine environment, and which contain pure limestone.

METAMORPHISM

Metamorphism is of great importance in the formation of high purity, high brightness (white) limestone deposits. Metamorphism of limestones in proximity to igneous intrusions often results in bleaching of susceptible rock, and coarsening of grain size. Regional metamorphism caused by pressure and heat at depth also cause the limestone to recrystallize, resulting in coarsening of grain size, dispersion of impurities (if present), and bleaching or whitening of the rock.

Pure limestones formed in agitated water, when subjected to metamorphism may form very white, coarse grained, very pure calcite marble deposits of premium quality. Within the Bonanza Lake area,

the Lower Member of the Quatsino Limestone has been subjected to metamorphism in the vicinity of the Island Intrusives, and has been recrystallized and bleached to white calcite marble

Intrusion of plutonic and batholithic rocks of Jurassic Age in the Bonanza Lake area has resulted in metamorphism and the formation of white crystalline limestone deposits. Limestones in closer proximity to the intrusives have been more highly recrystallized resulting in medium grained, white calcite marble, while the limestone which is farther from the intrusives is finer grained but has still been bleached to a fine grained marble.

STRUCTURAL CONTROLS

Structural controls of carbonate deposits have an important influence on the formation of a deposit. Folding can strongly influence a deposit. Thickness may be increased in the core of folds, while the limbs may be significantly thinned. Faulting may also exercise strong influence on a deposit. Faults can truncate a deposit at shallow depth, or hide a vast deposit under shallow cover. Other faults may cause repetition or omittance of a deposit.

UPLIFT, EROSION, AND PRESERVATION THRU GEOLOGIC TIME

Uplift and erosion has strong influence upon the preservation and mining of a deposit. Prolonged erosion may completely remove a deposit, while more recent uplift and erosion may remove the overburden. In some parts of the Bonanza Lake area (the north end) uplift and erosion have removed the hanging wall rocks leaving the white limestone deposit with no overburden.

WHITE, HIGH PURITY CRYSTALLINE LIMESTONE DEPOSIT

The Bonanza Claims have been staked over a very large and very significant white, high purity crystalline limestone deposit. The deposit is very large, with fairly good existing road access due to extensive logging. Several roads allow access to limestone outcrops, and logging has removed much of the timber in the area of the white limestone (although in some places replanting has occurred).

Description of the deposit is based on composite geologic mapping, sampling and the combined core drilling of 10 core holes totaling approximately 3000 feet of core. Drilling during 2001 included 5 holes totaling about 1330 feet and concentrated on the northern portion of the claims.

DESCRIPTION OF WHITE LIMESTONE DEPOSIT

LITHOLOGIC DESCRIPTION

The Quatsino Limestone in the Bonanza area is approximately 500 meters thick. The Lower Member is up to 200 meters thick, and is composed of generally white limestone with interbeds of grey limestone, and an Upper member up to 300 meters thick, composed of dark grey variably cherty

limestone.

The Lower Member of the Quatsino is of economic interest, and will be described in detail.

The Lower Member of the Quatsino Limestone may be up to 200 meters thick and weathers off-white to white and grey to black. Color on the fresh surface is often different from weathered color. The rock is massively layered, but jointed. Weathering and solution along joints has in some places formed open fissures, some of which are up to 2 meters across, .10 meters long, and more than 3 meters deep. Larger solution cavities may be present.

Color on fresh surface ranges from white to off white and light grey, and creamy buff color. In the north portion of the claims, the rock is sugary textured, and just incipiently recrystallized and incompletely bleached. To the south the rock is more metamorphosed and ranges from sugary to a more recrystallized medium grained calcite marble. In general rock to the south is more recrystallized and is a more uniform white color than rock in the northern portion of the deposit. Core drilling during 2001 concentrated on the northern portion of the deposit, where the rock is fine grained and suggary. Much of the rock encountered in the 2001 core drilling is composed of fine grained calcite marble.

The rock commonly contains stylolites, and in some places is highly stylolitic. Stylolites contain fresh and oxidized iron pyrite, giving some of the rock a brown iron oxide stain on stylolite surfaces. In some core samples a zones of oxidised and not oxidised stylolites. Several well developed joint sets are also present, and in some places are also iron oxide stained. In the southern part of the claims the rock is more recrystallized and stylolites are less common, occurring as thin dark grey or black and or iron stained seams.

In places the white rock contains grey silica blebs. The blebs, which are most likely silicified fossil debris, occur as bunches, as if concentrated by currents, and then subsequently silicified. Where most concentrated, they compose up to several percent or more of the rock, but most often comprise less than 1%. Most outcrops do not contain silicified fossil debris.

Interbedded with the white marble are several layers of medium to dark grey limestone and marble. Thickness of the grey layers ranges from 2 to 6 meters, and they occur at intervals ranging from 5 to 50 meters. Toward the south the grey layers are also more highly recrystallized, forming layers of light to medium grey calcite marble.

Also present within the white limestone/marble sequence, and most commonly toward the footwall, and near the southernmost exposures (particularly on the Leo D'or claims) are at least two layers of white marble with irregularly shaped silica nodules. This horizon was also encountered in the 2001 drilling at the north end of the deposit. A diabase sill is present in the old IMASCO adit area, and core drilling in the adit and during 1995 and 2001 indicated that several thin diabase sills are present near the footwall.

Overall, up to 200 meters of Lower Member is present. The rock is generally off white to white in color and pure limestone and or calcite marble, forming layers up to 50 meters thick. In general, rock to the north is less recrystallized and finer grained, and rock to the south is more highly recrystallized. Interbedded are grey layers ranging to 6 meters thick, and several thin felsite and or diabase sills have intruded the limestone.

SUMMARY OF 2001 CORE DRILLING

Five BQ core holes were drilled during June of 2001 at the Bonanza Claims. The drilling totaled 1367feet and was concentrated in the northern portion of the claims. Figure 4 is a map showing location of the 2001drill holes.

The area chosen for drilling was logged several years ago and existing logging roads provided access. Drill holes were located along the existing logging roads and thus no new disturbance was created. Water from a nearby drainages was utilized, and pumped directly to the drill, eliminating the need for a water truck. Drilling ran 12 hours a day and was completed in approximately 10 days.

All holes were collared in limestone near or within the hanging wall grey limestone. One of the holes was collared and terminated in dark grey hanging wall limestone. Two of the holes drilled thru steeply dipping mafic dikes but bottomed in ore. Two of the holes drilled thru the footwall into the underlying Karmutsen volcanics. Drill hole went thru approximately 430 feet of lower Quatsino white marble, before penetrating the footwall.

As noted elsewhere in the report, rock in the northern portion of the deposit is farther from the main batholith intrusive contact and is less metamorphosed and finer grained than rock in the southern end of the deposit.. The area chosen for drilling forms a large outcrop of medium to coarse grained white calcite marble, with limited hanging wall grey limestone, and may be suitable for open pit mining.

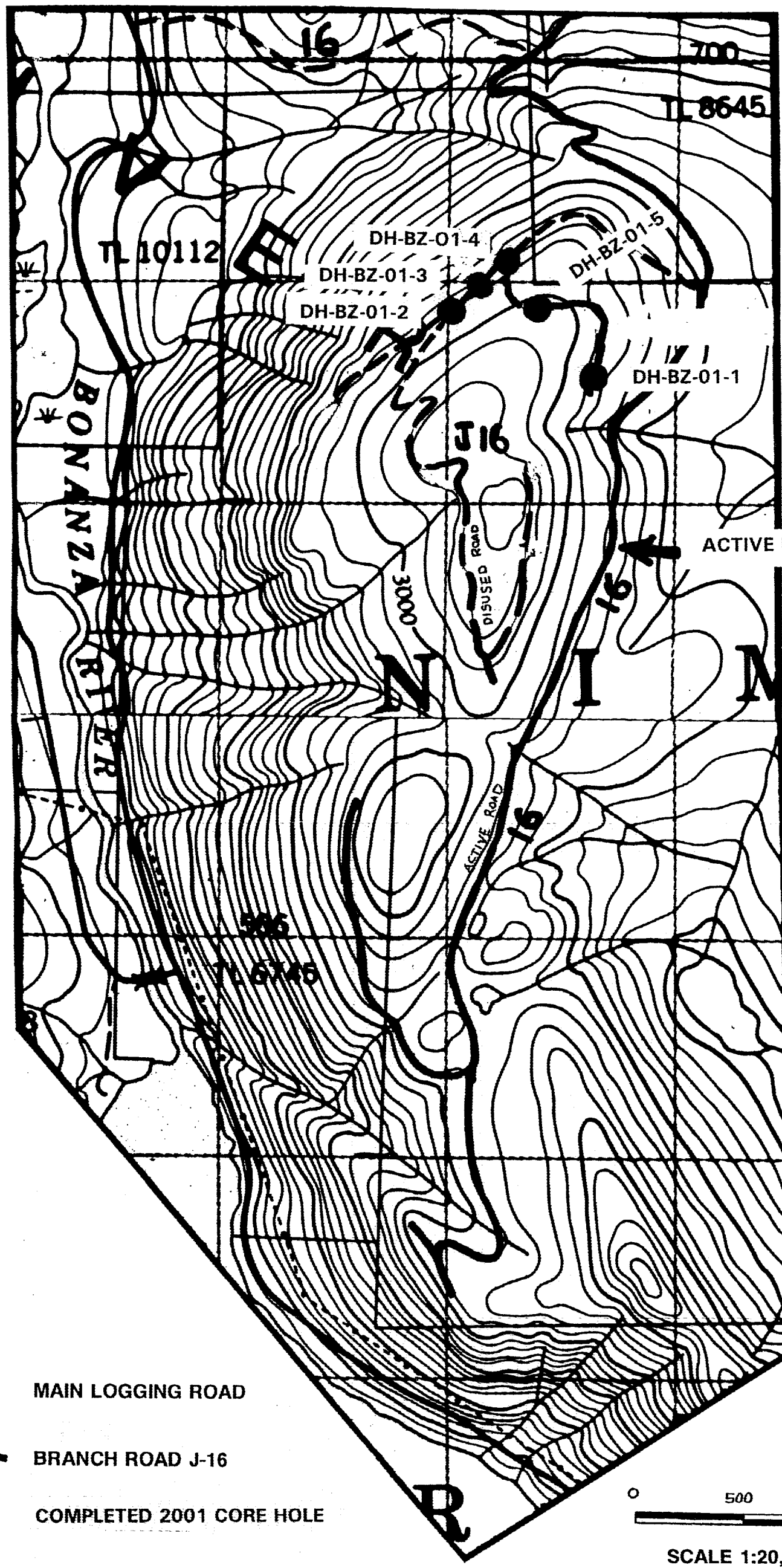
CUMULATIVE DRILLING RESULTS

Cumulatively 10 core holes have been drilled in the deposit, and numerous surface samples have been collected. This section will discuss the sampling and drilling results. Appendix 1 includes core logs of the core drilled in 2001. Core logs of previously drilled core and previous sample analysis have been included in previously submitted reports.

The discussion of drilling results incorporates all recent (2001) drilling information and previously compiled information.

Drilling and sampling thus far indicate that the white limestone is generally of high purity most often averaging >98% $CaCO_3$ and often greater than 99% $CaCO_3$. Sample analysis indicates that $MgCO_3$ is uniformly low, and is less than 1% in all samples analyzed (typically 0.5% or less) including drill core. Acid insolubles are generally low, but do show some variation, most often ranging from 0.5% to 3%.

BONANZA LAKE AREA
2001 DRILL HOLE LOCATION MAP



Mineral analysis of acid insolubles from drill core shows them to be composed of quartz, mica, feldspar, and pyrite. Pyrite and quartz are the dominant acid insolubles. No tremolite has been detected in the acid insoluble fraction. Pyrite occurs in the stylolites as previously noted. Some stylolites contain oxidised pyrite while others are un oxidised. Quartz is present as silicified fossil blebs. See previous discussion of stylolites and silica blebs.

Chemical analysis of both drill core and surface samples therefore indicates that the rock is a uniformly high calcium limestone averaging greater than 98% $CaCO_3$ with very low Magnesium, and generally very low acid insolubles.

Brightness tests have included grinding to various specifications, as well as flotation to test beneficiation techniques.

Overall, dry grinding to a -270 mesh grind indicates the brightness ranges from 87 to 93 G.F. with rock in the southern part of the claims being more recrystallized and having generally a higher overall brightness. Fine grinding to 2 microns generally has raised brightness several points, in some cases to as high as 94-96 G.F.. In some cases fine grinding caused the brightness to be depressed due to smearing . It is believed that the pyrite smears on fine grinding and caused the brightness to be depressed.

Flotation tests to remove the impurities resulted in considerably higher brightness than dry grinding, and in some cases raised the G.F. brightness to over 95, and for some samples brightness greater than 96 was achieved. Acid insolubles and abrasion were significantly reduced as a result of flotation.

Based on the sampling and drilling to date, it appears that the rock is generally quite pure and ranges from moderate to high brightness on dry grind. Fine Grind and Flotation results in a quite pure end product (99% $CaCO_3$), and for most samples a high brightness (93-96 G.F.), as well as low abrasion. It appears that rock from the southern part of the claims has a better dry grind brightness, while rock from both the north and south part of the claims with flotation yields high brightness. The existing Omya /Columbia River Carbonate (CRC) plant in Washington produces both flotation as well as non floated products. Additional beneficiation tests willrefine the flotation process for Bonanza Lake white limestone, and data to date demonstrates a high brightness, high purity product can be produced with proper beneficiation from the existing Omya facilities at CRC.

POTENTIAL RESOURCES AND RESERVES

The Bonanza Lake white limestone deposit covers a large area. The deposit may be up to 200 meters thick not counting interbedded off color grey layers or dikes, sills or other non useable material, which could amount to 30% of the total thickness.

Within the Bonanza Claims the white limestone of the Lower Member of the Quatsino Limestone either outcrops or underlies an area 4,000 meters in length and up to 2300 meters in width and may be up to 200 meters thick. Not enough drilling and or other geologic information is available at

present to allow the limestone deposit to be placed in the category of reserves, however based on the available geologic data the deposit is very large.

It is known that beneficiation can produce a high quality product, and, the majority of the potential ore is minable by selective methods, yields a potential in place geologic resource which is very large by any conceivable standard.

RECOMMENDATIONS FOR FUTURE WORK

Much additional work is required before limestone in this deposit can be placed in the reserves category. Ongoing logging is constructing new roads which will provide over time more access to the deposit. Future work should concentrate on continued drilling the deposit from the various existing and future logging roads, to establish controls on the thickness, quality, continuity, and ultimately minable reserves and a quarry plan.

In addition, lab analysis should concentrate on refining the beneficiation techniques which will result in a high quality product. This work should be coordinated with the Columbia River Carbonate plant and the existing and future beneficiation processes to be incorporated into the operation.

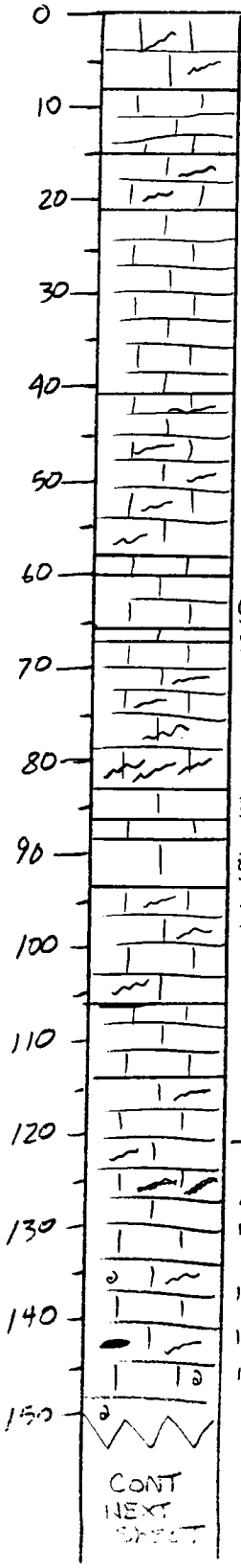
Additional geologic work should concentrate on detailed mapping of additional outcrops as logging removes the timber, as well as structural characteristics of the rock with regard to future mining techniques (open pit and underground) and development of detailed mining plans.

APPENDIX 1
DRILL CORE LOGS
2001 CORE DRILLING

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-1 PROPERTY BONANZA DATE START 6-18-01 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 386' DATE FINISH 6-20-01 BY H BROWN

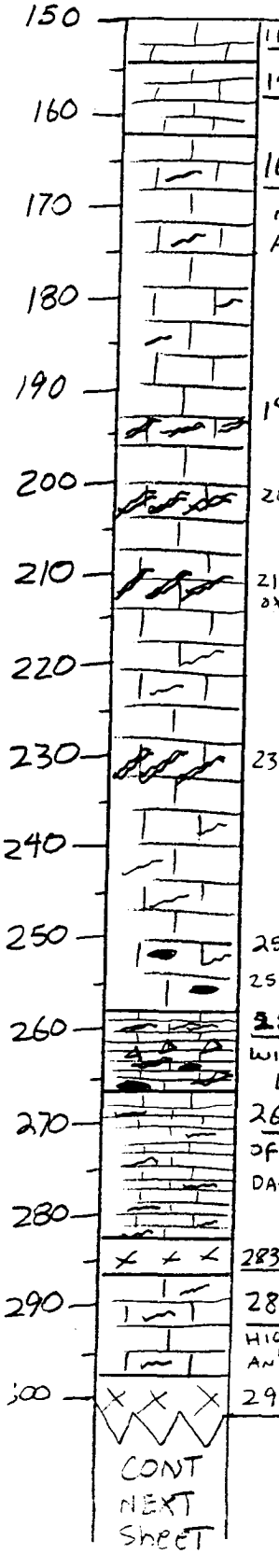
ELEVATION 835 M
LOG 2740'



DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
0-8 white marble with moderate iron oxide veins and on fractures + stylolites									
8-15 medium-dark grey limestone									
15-21 white									
21-41 Dark Grey limestone									
41-58 white marble moderate iron oxide veining and on fractures occasional stylolites									
58-60 Light Grey marble									
60-66 Dark grey limestone									
66-67 Light Grey Mbl									
67-83 white marble moderate iron oxide veining 76-78 heavy iron oxide 81-82 heavy stylolites									
83-86 Grey heavy stylolites									
86-88 white									
88-93 Dark Grey									
93-106 white marble moderate to heavy iron oxide veining + stylolites									
106-114 medium-dark Grey limestone									
114-154 white to off white marble moderate to heavy iron oxide veining and stylolites 120-132 heavy stylolites 144 3" Grey chert nodule 137, 146, 148-151 silicified fossils									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-1 PROPERTY BONANZA DATE START 6-18-01 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 386 DATE FINISH 6-20-01 BY H BROWN
ELEVATION 835 METERS 2740 FEET



LOG / DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
114-154 CONT WHITE									
154-162 MEDIUM GREY									
162-258 white marble MODERATE IRON OXIDE AND NON OXIDISED STYLOLITES									
194 HEAVY OXIDISED STYLOLITES									
203 HEAVY OXIDISED STYLOLITES									
210-211 HEAVY STYLOLITES OXIDISED + NON OXIDISED									
230-231 HIGH IRON OXIDE STYLOLITES									
251' 1" BROWN CHERT 255 3" BROWN CHERT									
256-266 LIGHT GREY WITH DARK GREY LIMINATION									
266-283 WHITE TO OFF WHITE MARBLE DARK GREY LAMINATION									
283-286 MAFIC DIKE									
286-297 white marble HIGH STYLOLITES OXIDISED AND NON OXIDISED									
297-302 MAFIC DIKE									
CONT NEXT SHEET									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-1 PROPERTY BONANZA DATE START 6-18-01 LOGGED
DRILL METHOD VERTICAL TOTAL DEPTH 386' DATE FINISH 6-20-01 BY H BROWN
BQ
ELEVATION 835 METERS
2740 FEET

LOG	DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
300	297-302 MAFIC DIKE									
	303-306 WHITE MARBLE									
310	306-356 WHITE TO OFF WHITE COMMONLY THIN LAMINATED MODERATE IRON OXIDE AND NON OXIDISED									
320										
330										
340										
350										
360	356-359 GREY GREEN VOLCANIC UP TO 20% PYRITE VEINS AND BLEBS									
370	359-386 DARK GREEN VOLCANIC ROCK KARMUTSEN									
380										

WHITE TO OFF WHITE MBL
THIN LAMINATED
LIGHT GREY
DARK GREY
CHERT
SILICIFIED FOSSILS
STYLOLITES
OXIDIZED STYLOLITES
MAFIC DIKE
KARMUTSEN VOLCANICS

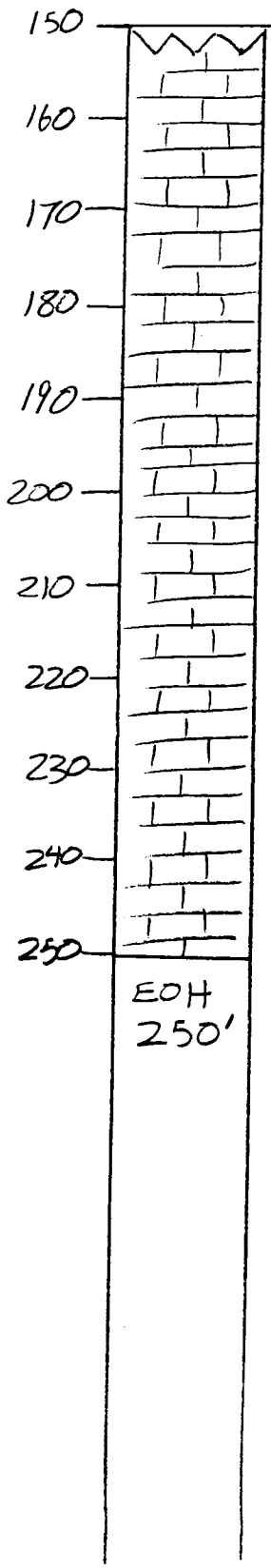
PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-2 PROPERTY BONANZA DATE START 6-21 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 250 ft DATE FINISH 6-22 BY HJ BROWN
ELEVATION 815 meters 2675 feet

LOG	DESCRIPTION	% REC	ASSAY DATA Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
0	0-250									
10	VERY DARK grey TO BLACK FINE grained LIMESTONE									
20	OCCASIONAL THIN WHITE CALCITE VEINS, STRINGERS									
30	AND BLEBS									
40										
50										
60										
70										
80										
90										
100										
110										
120										
130										
140										
150	CONT NEXT SHEET									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

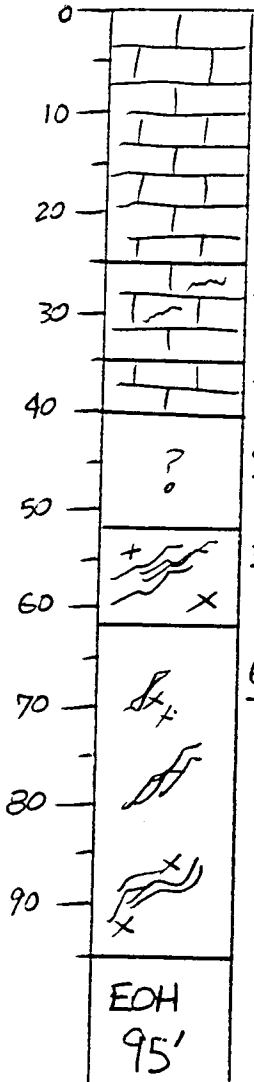
DRILL HOLE # BZ-01-2 PROPERTY BONANZA DATE START 6-21 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 250 FT DATE FINISH 6-22 BY H BROWN
ELEVATION 790 METERS 2590 FEET



LOG	DESCRIPTION	% REC	ASSAY DATA							
			Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
	0-250 CONT DARK GREY LIMESTONE									
	EOH 250'									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-3 PROPERTY BONANZA DATE START 6-23 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 95' DATE FINISH 6-23 BY H BROWN
ELEVATION 800 METERS 2625 FEET



LOG	DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
	0-25 DARK GREY LIMESTONE									
	25-35 WHITE MARBLE WITH STYLOLITES									
	35-40 DARK GREY LIMESTONE									
?	40-52 NO CORE									
+ x	52-62 CLAY ALTERED DIKE	20% RECOVERY								
	62-95 ALTERED DIKE	5% CORE RECOVERY								
	EOH 95'									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-4 PROPERTY BONANZA DATE START 6-23 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 182' DATE FINISH 6-24 BY H Brown
ELEVATION 798 METERS 2617 FEET

LOG	DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
0	0-8 Dark Grey Limestone									
10	8-28 Light grey Limestone									
20										
30	28-62 white to off white and very light grey Limestone some is cream color. Fine grain occasional stylolites									
40										
50										
60										
64-129	Dark grey Limestone									
70										
80										
90										
100										
110										
120										
120	Breccia with white Ls clasts									
129-133	white Limestone fine grain									
130										
133-148	Intrusive Dike									
140										
148-163	off white creamy color fine grain Limestone									
150										
	CONT NEXT SHEET									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

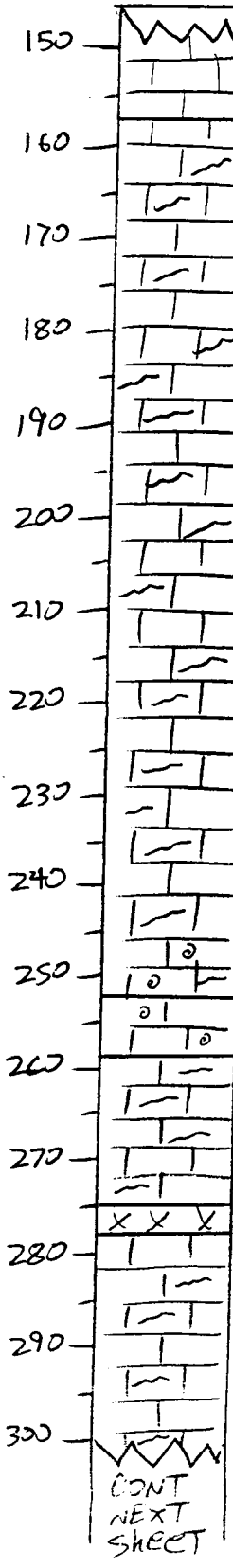
DRILL HOLE # BZ-01-4 PROPERTY BONANZA DATE START 6-23 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 182' DATE FINISH 6-24 BY H BROWN
ELEVATION 798 METERS 2617 FEET

LOG	DESCRIPTION	% REC	ASSAY DATA Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
150	CONT 148-163 WHITE TO OFF WHITE CREAMY COLOR LIMESTONE									
160										
	163-170 DARK GREY LIMESTONE									
170	170-175 OFF WHITE LIMESTONE									
180	175-182 DARK GREY LIMESTONE									
	EOH 182'									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-5 PROPERTY BONANZA DATE START 6-25 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 454' DATE FINISH 6-28 BY H Brown

ELEVATION 839 METERS
2768 FEET



LOG	DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
	142-157 CONT DARK GREY LS									
	159-253 WHITE MARBLE MODERATE TO HIGH STYLOLITES									
	161-170 NOT OX									
	170-181 OX									
	181-191 NOT OX									
	191-193 OX									
	193-201 NOT OX									
	201-221 MIX OX NOT OX									
	231-238 NOT OX									
	235 2" STYLOLITE									
	247-253 SILICATED FOSSIL BLEBS 1/4"									
	253-259 DARK GREY LS									
	259-275 WHITE MBL COMMON STYLOLITES SILICATED FOSSIL BLEB 261, 265									
X X X	275-277 MAFIC DIKE DIP 40°									
	277-371 WHITE TO OFF WHITE MBL MODERATE TO HIGH STYLOLITES									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-5 PROPERTY Bonanza DATE START 6-25 LOGGED
DRILL METHOD Vertical BQ TOTAL DEPTH 454' DATE FINISH 6-28 BY H Brown
ELEVATION 839 METERS 2768 Feet

LOG	DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
300	CONT 277-371 WHITE TO off white MODERATE TO High STYLOLITES									
310										
320										
330										
340										
350	346-349 Breccia CHERT HEAVY STYLOLITES; 349-364 THIN LAMINATED VERY High STYLOLITES									
360	364-371 STYLOLITES UP TO ¼" THICK									
370	371' 3" FAULT GOUGE; 371-387 Thin TO MEDIUM LAMINATED									
380										
390	387-390 DARK grey THIN LAMINATED; 390-402 off white THIN LAMINATED									
400	XXX 402-405 MAFIC DIKE	dip 20°								
410	405-438 off white TO VERY Light grey THIN LAMINATED VERY High STYLOLITES									
420										
430	436-438 Breccia, FAULTING offset STYLOLITES									
440	PY PY PY 438-454 DARK green BLACK Volcanic Rock									
450	438-441 High pyrite blebs IN VESICLES									
	EOH 454'									

PLUESS-STAUFER (CALIFORNIA) INC. DRILL LOG

DRILL HOLE # BZ-01-5 PROPERTY BONANZA DATE START 6-25 LOGGED
DRILL METHOD VERTICAL BQ TOTAL DEPTH 454' DATE FINISH 6-28 BY H BROWN

ELEVATION 839 METERS
2768 FEET

LOG	DESCRIPTION	% REC	ASSAY DATA: Grind	R.F.	G.F.	B.F.	Y.I.	$CaCO_3$	$MgCO_3$	A. Insol
0	0-22 MEDIUM TO DARK GREY LIMESTONE									
10										
20	22-41 WHITE MARBLE OCCASIONAL STYLOLITES OXIDISED									
30										
40	41-64 LIGHT TO MEDIUM GREY LIMESTONE									
50										
60	64-130 WHITE TO OFF WHITE MBL VARIABLE MODERATE TO HIGH STYLOLITES MOSTLY OXIDISED									
70										
80										
90										
100										
110										
120	121-130 STYLOLITES NOT OXIDISED									
130	130-134 DARK GREY LS									
140	134-142 WHITE MBL NON OXIDISED STYLOLITES									
150	142-157 DARK GREY LS									
	CONT NEXT SHEET									

STATEMENT OF WORK PERFORMED AND COSTS

CORE DRILLING		**COST**
Core drilling 5 holes total 1367feet @18.00/ft		$24,606
Extras (core box lids and moving core to trucking company)		$ 547
GST		$ 1,760
TOTAL DRILLING COST		$26,913

SHIPPING CORE AND STORAGE

Ship core from Port McNeill to Lucerne Valley CA		$ 2,075
and moving into storage site (4480 lbs)		$ 375
TOTAL CORE SHIPPING AND STORAGE		$ 2,450

ON SITE GEOLOGIST AND CORE LOGGING

Locating drill holes, supervision, field core logging		
5 days		
includes	Salary @ $400/day	$ 2,000
	Lodging and meals @ $100/day	$ 500
	Vehicle (4wd) with fuel @ $100/day	$ 500
	RTTravel to and from Port McNeill	$ 350
TOTAL GEOLOGIST ON SITE		$ 3,350

OFFICE COSTS

Preparing core logs, core photos, report and document preparation		
5 days		
includes	Salary @$400/day	$ 2,000
	Photo develop, Copy and collating	$ 80
TOTAL OFFICE COSTS		$ 2,080

+ 10% OVERHEAD FOR GEOLOGIST AND OFFICE COST	$ 543

TOTAL COSTS DIRECTLY APPLICABLE TO ASSESSMENT **$35,336**

APPENDIX 4
SUMMARY OF AUTHORS PROFESSIONAL EXPERIENCE

HOWARD J. BROWN, GEOLOGIST
SUMMARY OF PROFESSIONAL EXPERIENCE
July 2001

Geology Graduate of California State University, Northridge, receiving a Bachelor Degree in 1975.

More than 24 years professional experience in positions of responsibility as an Exploration and Mining Geologist and Mining Engineer in the mining industry in Western North America. Experience includes Uranium, Gold, and a large variety of Industrial Minerals.

Currently employed by OMYA (California) Inc. since 1979. Previously employed by Noranda Exploration, and Freeport Gold Co. (FMC).

I have participated in over 115 mineral evaluation and exploration projects in North America, ranging from local to regional in extent, from British Columbia to Southern Mexico. Projects have included all phases of conceptual model development thru reconnaisence and detailed geologic mapping, sampling, drilling, discovery and orebody delineation of economically minable deposits, of both metallic and a large number of industrial mineral deposits.

Project Permitting experiences include preparation, approval and permitting for several large scale currently active industrial mineral mines, and preparation and approval and successful implementation of detailed comprehensive phased reclamation plans for large scale multi-mine operations in several states and Canada, and thru several regulatory agencies at various Federal, State and Local levels.

Mine design and engineering experience includes all development aspects of ten (10) currently operational mines in several states, including all aspects of compliance with regulations, geotechnical analysis, geology and reserve definition, mine engineering and planning including conceptual and detailed short and long term engineering design, equipment selection, economics, and reclamation.

Mine management and production experience includes both long and short term ore production and mine development, including planning, scheduling, mine mapping, equipment selection, inventory calculations and management, cost analysis, and budget preparation.

Author of more than 22 published papers and abstracts on a variety of geological and economic geology topics for various professional societies and technical journals.

Considered by peers to be an expert on Limestone Deposits in Western North America, Paleozoic Stratigraphy, and Geology of the Mojave Desert region.

Member of the following professional societies: Society of Mining Engineers (SME), Geological Society of America (GSA), Society of Economic Geologists (SEG), South Coast Geological Society, Inland Geological Society, Arizona Geological Society (AGS)